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Availability of Healthcare Resources on Equitable Bases in the United States During Covid-19: A Review on Health Economic Aspects

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ABSTRACT

Background: COVID-19 is a respiratory ailment spreading from human to human unprecedently bringing about a condition of a pandemic. Rehearsing individual cleanliness is carefully suggested by the U.S. as a prudent step. In any case, to control the ailment spread at the network level there is the need to guarantee an even-handed conveyance of the medicinal services offices among the favoured and oppressed populace of the U.S.

Objective: To understand the resource allocation of the healthcare sector in the U.S. and the challenges faced while mitigating the economic impact on the U.S. during COVID-19.

Methods: The literature review was performed using databases such as PubMed, Scopus, EBSCO and Google Scholar for the government reports released.

Results: Although the U.S. has taken several measures to control the impact of COVID-19 on the population as well as the economy. The underprivileged and some minority groups in the country have been affected by this pandemic. Health insurance plan has been modified in favour of the people so, they could have access to healthcare services. However, in the entire effort of mitigation, the country has faced certain challenges. Compare to the whites, Native Americans, African American and LatinX are facing consequences of the lockdown of the country at a greater intensity. Due to unemployment access to basic necessity was not possible for poor people. The downfall of the economy created a divide in the rural and urban hospitals on the grounds of revenue, availability of health resources and specialists.

Conclusion: It is essential to contain and get ready to alleviate further episodes, especially in nations with battling or under-resourced health system framework. As a consequence, marginal propensity to consume and marginal propensity to save comes down to per capita expenditure of individuals on health and medical care hikes.

Key Words: COVID-19, Economics, Healthcare sector, Health resources, Health insurance, United States

INTRODUCTION

Coronavirus is an emerging zoonotic disease that is causing public health threats all over the world. The history of human coronavirus. started in 1965.[1] It is a disease of animal origin as the natural reservoir of coronavirus is found in cats, bats, cattle and camels.[2] This new group of viruses was named coronavirus (corona denoting the crown-like appearance of the surface projections).[1] The only method to address this highly fatal and contagious disease is to provide prompt symptomatic treatment.[3] Center for Disease Control (CDC) updated on 4th June the total number of cases in the U.S. is 1,842,101 and total deaths are 107,029.[4] The mortality rate ranges between 0.25% and 3.0%.11.[5] The vulnerable population have elevated fatality rates such as person aged 80 years and the person with comorbidities like cardiovascular disease and diabetes.[6]

COVID-19 is a respiratory disease transmitted by aerosols and fomite is spreading from human to human unprecedently resulting in coronavirus infection worldwide leading to a pandemic state. Practising personal hygiene is strictly recommended by the nation as a precautionary measure. However, to control the disease spread at the community level there is the need to ensure there is equitable distribution of the healthcare facilities among the privileged and underprivi-

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leged population of the U.S. The population of the U.S. is 329748944 and the demand for healthcare services is high as the COVID-19 cases continue to grow at a speedy rate.[7] As the vaccination for COVID-19 is yet to innovative, early diagnosis and symptomatic treatment is the only way to stop the disease from worsening. Hence it becomes important that all people receive early and prompt treatment at the initial stage of the disease.

The paper focused on the country's preparedness in terms of budgeting and allocation of healthcare resources and funds on an equitable basis. The steps lay down by the U.S. to combat the disease through health insurance schemes. Also, the challenges faced by the country to mitigate the economic impact on health sectors in this pandemic. The review paper will be contemplating the two principal of health economics explicitly efficiency impacts and the equity impacts during the COVID-19 outbreak in the U.S. Both the outcome of the concept is to measure the quality-adjusted life years (QALYs). Efficiency in health economics is used to get the finest cost for money for the health care resource.[8] It is the relation between resource inputs such as costs, in the terms of labour or equipment and intermediate outputs or final health outcomes i.e. QUALYs.

MATERIALS AND METHODS

Databases and government official websites providing information regarding health economics and insurance of the U.S. in the state of COVID-19 pandemic were considered. Databases such as PubMed, Medline, EBSCO host, dimensions and web of science were searched for the impact on the healthcare sector due to this pandemic from 2019. The language of included articles was restricted to English only. Data extracted to meet the objectives of the paper are costs to the health system, allocation of health care resources, health insurance companies, and health system funding and fiscal implications. Accessibility to healthcare facilities, out-of-pocket expenditure, impoverishing, health status., vulnerable groups (Existing challenges) and mitigation strategies to reduce the impact of the pandemic.

RESULTS

Status of healthcare resources as per the American Hospital Association (AHA)

As per the report of AHA of 2018, the U.S. maintains 5198 community hospitals and 209 federal hospitals. The availability of hospital beds in community hospital are 792,417 and ICU beds counting is 96,500 which includes beds for neonatal and paediatric. The ventilators specifically required in the treatment of the COVID-19 are approximately 62,000 in the entire country. The buffer stock according to Strategic National Stockpile is estimated to be around 10,000 to 20,000. The ventilators with basic functions which can be of great help during the shortage of resources are 98,000 because there exist certain norms for the amount of supply and manufacturing the ventilators.[9]

The present scenario in the country states there is an urgent need for trained health care professionals specializing in the respiratory disease speciality such as respiratory therapists and trained critical care staff who are capable of managing the ventilators. Availability of the doctors as well as other healthcare providers in the hospital at all shift is one of the necessities to be met. The nation possesses 76,000 full-time respiratory therapists and 512,000 critical care nurses only from Community hospitals.[9] As per the law in California, for every four ventilated patients one respiratory therapist should be allotted. If followed then with the available respiratory therapist only 100,000 patients can care per day.[10]

Healthcare professionals and providers are facing a shortage of essential PPE like N95 masks, regular masks, protection gowns and diagnostic kits. The letter requesting the grant of funds worth 100 billion U.S.$ has been issued to the speaker of the house Congress. The appeal is done by AHA President and CEO, Executive Vice President and CEO of the American Medical Association, nevertheless CEO of American Nurses Association Enterprise too.[11]

Health insurance and out of pocket expenditure

COVID-19 is a public health emergency to sensitize the disease concern and to encourage people to take a righteous decision in terms of testing and treatment. Americans have been allowed to avoid governmental or monetary interruption to seek medical help regarding COVID-19 and all the medical care services are provided by a health plan will be without deductibles. An individual paying a high deductible health plan (HDHP) under the Internal Revenue Service (IRS) as a part of their health insurance can avail the health grant to test and treat COVID-19 without deductibles. If the deductibles paid towards HDHP will be with minimum deductibles for self or family.

The HDHP fulfils to deliver health benefits for testing and treatment of COVID-19. without claim to deductible or cost-sharing. This health plan satiates constraint with certain requirements to minimum deductibles and maximum out of the pocket expenditure. A certain amount is paid by the policyholder before the insurance provider starts bearing the expenses. Under this plan as preventive care, vaccination is pondered with HDHP.[9]

Efficiency impacts

The treatment of COVID-19 is pricy and variable, this requires a good trace of finances. Which will help to support

the financial crisis to make up for the COVID-19 outbreak to contain several hospitals in the U.S. who are trying to protect the capital instead of using them in elective procedures and store buffer stock to treat the COVID-19 patients in a state of emergency.[11]

The current situation of rising coronavirus cases in the country has led to the paucity of basic healthcare resources like beds and ventilators besides, the scarcity of specialised doctors and nurses. Those on duty are either infected or being quarantined due to exposure. The impact of this pandemic has left with a scarcity of healthcare providers in the big cities as well. It has been observed, in the rural hospital's space is less, health care supply is inadequate to meet the increasing cases of COVID-19. Now, the U.S. priority is to make it cost-effective by reducing the gap between therapeutic needs and the supply chains productions of the resources and allocation of scarce resources efficiently among the population in serious.[10]

To keep the hospital financially stable, manage the limited resources and reduce the spread of the disease, many hospitals closed outpatient departments. Some of them started postponing or cancelling elective visits and procedures. This step affected the financial viability of a few hospitals as the revenue from the outpatient department (OPD) and elective visits were hampered. According to the 2014 reports of Healthcare Research and Quality, out of total inpatient revenue, 30% is contributed from elective admissions. Which accounts for more than $700 from elective admissions if compared to the emergency department.[12]

Hospitals in certain districts will encounter both more prominent income due to COVID-19 hospitalizations and more noteworthy costs identified with extra staff and assets, while different medical clinics will encounter generally less income because of state or government direction to limit unnecessary admissions.[12]

This pandemic situation has brought a divide between rural and urban hospitals (bigger or smaller hospitals) in terms of revenue content. As per the 2019-year analysis 1 in 5 rural hospitals has a probability of shutting because of financial difficulties. The concern is, according to the March 28, 2020 report almost 10 million people have claimed unemployment insurance. Bearing all the consequences of the pandemic COVID-19, the U.S. economy will be hit by 10 to 25% in the second quarter and will face a recession.[13]

Equity impacts

Equity in treatment

COVID-19 pandemic has uncovered numerous deficiencies in U.S. medical care, especially the ability to deal with a general wellbeing crisis. Insufficiencies in the foundation, underreporting, distribution and admittance to COVID-19 screening tests, logical inconsistencies in the transmission of factual real-time information, and deficient arrangement of resources such as PPE to overburdened hospitals and health care workers are a couple of the issues intensifying the antagonistic impacts of this pandemic on the wellbeing and government assistance of the country. In any case, perhaps the most serious issue the COVID-19. has lit up is the wide scope of disparities in our country's way to deal with medical services. These have just gotten more straightforward all through the COVID-19 emergency.[14]

The public health measure of social distancing has given rise to discrimination in the society, racism and differences between the vulnerable populations of the U.S. The extent of discrimination has gone based on gender where women are found to be affected more and increased discrimination among Asian Americans in society, especially in the workplace.[15] For people from poor or underestimated foundations, instructive frameworks, labour groups, and work environment conditions regularly propagate frameworks of persecution, force, and benefit, bringing about them encountering minimization and segregation inside these frameworks and getting less fortunate and professional results. This period has generated fear among the population of losing their jobs due to a major economic crisis. COVID-19 is having an unemployment impact on the workers of colour, low-income groups, uneducated and people with less liquid assets if compared to the white-collared professionals and people of higher middle-class society. Compare to the whites, African American/Black, Native Americans and LatinX are facing consequences of the lockdown of the country at a greater intensity.[29]

Considering the vulnerable population of the U.S.

The U.S. government supports the vulnerable population by giving them financial aid/ relief for sustainability during the COVID-19 outbreak. Under Coronavirus Aid, Relief, and Economic Security (CARES) act Americans have been benefitted from Economic Impact Payments (Payments). The Internal Revenue Service (IRS) endures to self-direct the payments to the authorized individual; however, some may have to supply additional information to the IRS to receive the rewards.[16]

Paid sick leave for 10 days will be given for an employee who is not capable to work due to quarantine or self-quarantine or has coronavirus symptoms and is seeking medical help. The wage on the worker's ordinary rate of pay, or, if higher, the Federal minimal salary or any applicable State or local minimum salary, up to $511 in line with day, overall, no more than $5,110.[17]

If someone is not capable to work since to care for someone who is affected by COVID-19 or to take care of the child as a result of the closure of the child's school or paid caretaker is not available due to COVID-19. The employee is eligible for two weeks of paid sick leave at two-thirds the employee's

regular rate of pay or, if better, the Federal minimum salary or any relevant State or local minimum wage, up to $200 in step with day, however, no extra than $2,000 in general.[17]

If an employee is not able to work so has to look after the child since the closure of the school, place of care, if the caretaker is not available because of COVID-19. He is eligible for paid family and medical leave of 10 weeks. The employee will be remunerated equal to two-thirds of the employee's normal pay, up to $200 per day and $10,000 in total.[17]

Challenges faced in mitigating strategies

Congress in the U.S.A permitted the CARES Act and the Paycheck Protection Program and Health Care Enhancement Act, in which $175 billion is provided as emergency funding for hospitals and other health care organizations. However, the disbursement of this fund is challenging as it has to be provided to the neediest in this pandemic situation. The big hospitals are producing revenue from outpatients and elective services. Whereas, the problem is faced by the smaller rural hospitals who are unable to get the revenue. If these budgetary lacunas continue to persist then it might lead to the shutting down of the rural hospitals.[12]

Deferred shipments and manufacturing plans make monetary issues for organizations with substantial obligations in the U.S. The effect on the worldwide equity value markets and departure from financial specialists selling resources, for example, high return securities and unpredictable stocks. Concerns about budget risks may evaporate liquidity in the financial economy. National banks of the U.S. are working hard to deal with a V-shaped recession to cope up with the downturn after the pandemic is over.[18]

Some of the challenges faced in the process of implementing preventive measures by the U.S. government were depicted on the vulnerable population. Women found it difficult to continue working as the daycares, schools, and external resources are closed down.[19] Social distancing protocols have led to the shutting of restaurants/bars, travel and transportation, entertainment, personal services, and certain types of retail and production factories.[20] Thus, causing a major impact on the employment status of the U.S. population.

Workers who work in basic administrations, for example, markets, may not be furnished with the essential PPE gear to shield them safe from getting the infection. A few of them need to pick between their wellbeing and the need to procure wages to pay for fundamental necessities. The instability of the circumstance is additionally exacerbated by the way that numerous. market labourers are utilized in the lowest pay permitted by law occupations with little access to benefits, for example, medical expenses and paid sick leave.[19]

Due to the current outbreak, the dentist worldwide is sufferers since dentistry is a profession where dentist work in close contact of the patient mouth was more likely to spread COVID-19 is at greater risk. Due to which many regulatory bodies of dental practitioners are performing only emergency procedures. In the U.S. due to monetary dread to pay salaries to employees and economical losses some practices are shut down and some continue to work.[21]

DISCUSSION

Novel coronavirus first case was identified and later found a cluster of pneumonia cases in Wuhan Municipal Health Commission, China, which reported a cluster of cases of pneumonia in Wuhan, Hubei Province China. On 30th January WHO Director-General declared novel coronavirus 2019 a public health emergency of international concern (PHEIC). WHO released a strategic preparedness and response plan to help and protect the health system of the weaker State.[2] Every country has taken up an appropriate measure to control and contain the disease spread. In the U.S., the Centres for Disease Control (CDC) has taken initiative to respond to support COVID-19 along with the National Healthcare Safety Network to track the disease. The CDC along with multiple surveillance system, epidemiology network and in alliance with the state, local, and academic partners scrutinise the evolution of the disease and its impact in the U.S. [22]

Financial aid and management

The CDC emphasis on laboratory test to both symptomatic and asymptomatic in detect and report the case timely for public health action. To encourage people to test, the U.S. government supports the vulnerable population by giving them financial aid/ relief for sustainability during the COVID-19 outbreak.[22] Under CARES act Americans have been benefitted from Economic Impact Payments (Payments). The IRS endures to self-direct the payments to the authorized individual; however, some may have to supply additional information to the IRS to receive the rewards.[16] In Vietnam detection of cases, isolation, tracing cases and the surveillance of the suspected cases with the support of the Emergency Public Health Operations Centre was set in the General Department of Preventive Medicine to guide the provincial CDCs.[23] In the UK National Health Service (NHS) monitors the testing and treatment of COVID-19 cases for British citizens and visitors as well.[24]

Financial aid is provided by the UK government for COVID-19 cases through NHS, which comprises sick pay leave, COVID-19 testing, remote management of patients, support for stay home models.[25] In the U.S.A due to monetary dread to pay salaries to employees and economical losses some of the dental practices are shut down and some continue to work.[21] In the UK, The British dental association has also stopped routine dental practice hence dental doctors are in financial losses.[26]

Efficiency impacts

The current rise in the number of cases as the U.S. stands with a greater number of COVID-19 cases across the world, to keep the hospital financially stable, manage the limited resources and reduce the spread of the disease wherein poses the shortage of health care workers, respiratory therapist and PPE. Community health workers in Brazil are trained for 4- 6 weeks on health promotion and public health surveillance along with that online course are conducted to train them.[27] Vietnam is confronting with a shortage of medical equipment, PPE for the medical staffs.[23] In U.K. new NHS guidelines to release bed capacity, free up the maximum possible IPD and critical care, increasing respiratory support. The U.K is also providing aftercare support for the patient recovered from the COVID-19 with rehabilitation.[25] Availability of intensive care and intermediate care beds is also deficient in Europe, Germany ranging from 29.2 to 4.2 beds per 100,000 populations in Portugal, the study conducted in 2010-11.[28] Most the countries are less prepared for the outbreak as there is a greater number of cases and disease spread is faster in rate.

Equity impacts

A remarkable disparity among the ethics groups across the U.S. is seen from the past even with the medical system for their timely care about the health. The equitable impact which is seen in treating the COVID-19 is also with the socio-economic backgrounds. Due to structural racism among the black and brown families, they have denied access to quality health care, affordable housing and financial security.[29] A person from a low socio-economic group has factors connected to his lifestyle of not taking nutritive food, spending enough money to take care of his health. The risk factor of COVID-19 is identified as comorbidity. People from the low-income group cannot offer to maintain the social norms to prevent disease since their livelihood is dependent on their work; hence a greater number of cases are seen among the ethnic groups which are giving rise to inequity. Unemployment is also seen as a major setback to the pandemic crisis. Many Americans during this crisis lack decent work to protect them from the risk of being infected.[19]

Long term and short-term effect of COVID-19

The short-term effect of the pandemic is a risk among the population being infected by the disease. Economic instability for a freelancer working on the field, daily wage worker, employment insecurity in the short course until the epidemic slows down. Temporary suspension of school and colleges to control the outbreak put parents in a situation to stay back to take care of their kids leading to job instability. E-Commerce and internet-based jobs will be more secured and safer. An uninsured person due to coronavirus infection has to bear the catastrophic health expenditure. Shortage of PPE leads to a rise in demand and production of the goods and downfall in the other products will be stagnant. In the healthcare industry due to the cancellation of elective surgery and procedure, the income of the hospital will be condensed. Impediment in travel and tourism decrease the income of the individual, the corporate sector as well as the public sector. It leads to too much pressure on the government to ensure the health care and social security of the mass.

If the pandemic persists for a long time the rate of growth of Gross Domestic Product (GDP) declines. Disequilibrium between the aggregate supply and aggregate demand occurs; effective demand will be inelastic due to unemployment. As a consequence, marginal propensity to consume and marginal propensity to save comes down to per capita expenditure of individuals on health and medical care hikes. Instantly it leads to continuous raise in public expenditure in general, health, medical care, research and development investment in the pharmaceutical industry, social security measures, relief measures in particular. Interruptive circular flow of factors, product and wealth strains international trade. Trade cycles, market failure and disequilibrium balance of payments curtail the entire global economy.

CONCLUSION

It is essential to contain and get ready to alleviate further episodes, especially in nations with battling or under-resourced health system framework. The COVID-19 pandemic speaks to an exceptional clinical and financial test for the U.S. medicinal services framework. Without strong and continued administrative help, practically all emergency rural hospitals will encounter finance-related challenges. Be that as it May, small hospitals, autonomous, provincial, and have basic access status. are especially in danger. Policymakers ought to offer committed help to these emergency clinics to get to CARES Act reserves and consider distributing extra subsidizing to them during the COVID-19 pandemic. There is a need to support the countries which are struggling to find the vaccine to stop the spread of the disease. Enlightenment of self-interest in preventing the infection is an essential nevertheless equitable approach to global health is of foremost importance.

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